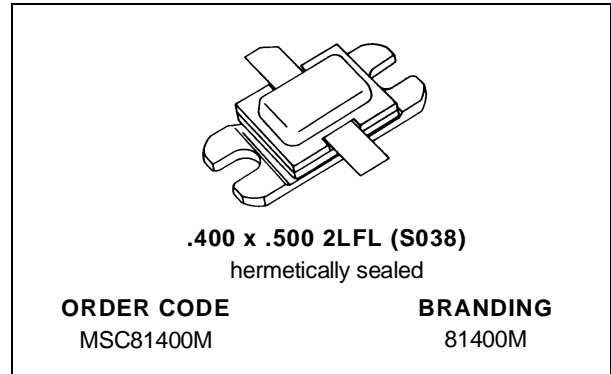


## RF & MICROWAVE TRANSISTORS AVIONICS APPLICATIONS

- REFRACTORY\GOLD METALLIZATION
- RUGGEDIZED VSWR 25:1
- INTERNAL INPUT/OUTPUT MATCHING
- LOW THERMAL RESISTANCE
- METAL/CERAMIC HERMETIC PACKAGE
- P<sub>OUT</sub> = 400 W MIN. WITH 6.5 dB GAIN

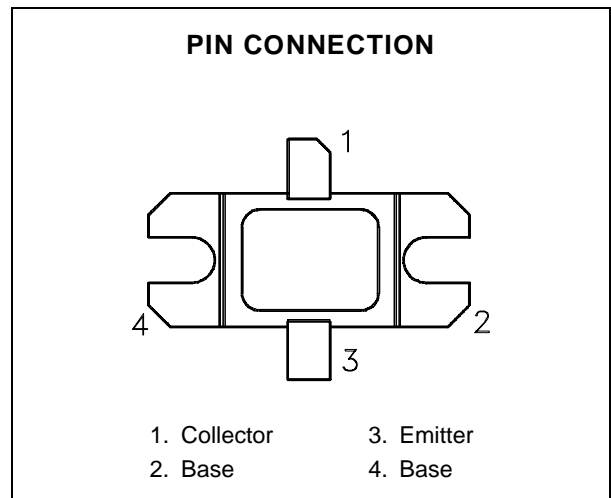


### DESCRIPTION

The MSC81400M "Super Power" transistor is a high peak pulse power device specifically designed for DME/TACAN avionics applications.

This device is capable of withstanding a minimum 25:1 load mismatch condition at any phase angle under full rated conditions.

The MSC81400M is housed in the unique BIG-PAC™ hermetic metal/ceramic package with internal input/output matching structures.



### ABSOLUTE MAXIMUM RATINGS (T<sub>case</sub> = 25°C)

Symbol	Parameter	Value	Unit
P <sub>DISS</sub>	Power Dissipation* (T <sub>C</sub> ≤ 80°C)	1000	W
I <sub>C</sub>	Device Current*	28	A
V <sub>CC</sub>	Collector-Supply Voltage*	55	V
T <sub>J</sub>	Junction Temperature (Pulsed RF Operation)	250	°C
T <sub>STG</sub>	Storage Temperature	- 65 to +200	°C

### THERMAL DATA

R <sub>TH(j-c)</sub>	Junction-Case Thermal Resistance*	0.12	°C/W
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\*Applies only to rated RF amplifier operation

# MSC81400M

## ELECTRICAL SPECIFICATIONS (T<sub>case</sub> = 25°C)

### STATIC

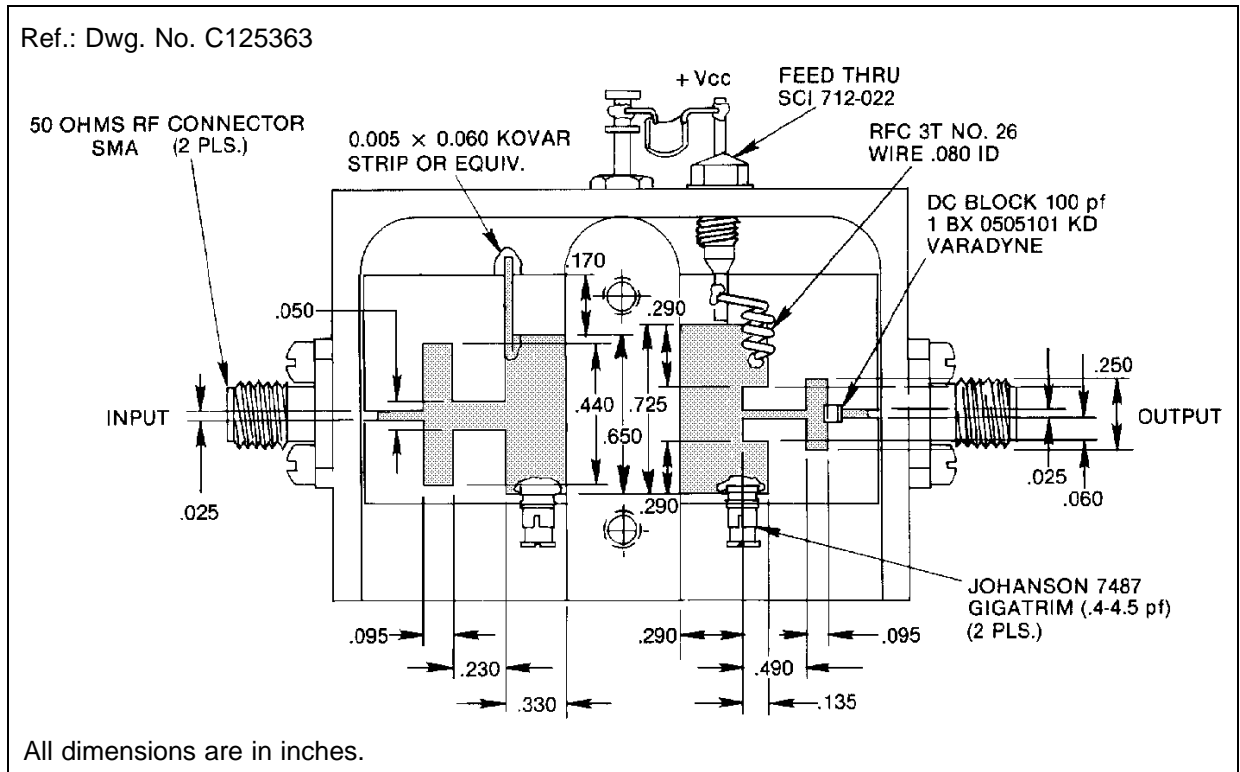
Symbol	Test Conditions		Value			Unit
			Min.	Typ.	Max.	
BV <sub>CBO</sub>	I <sub>C</sub> = 15mA	I <sub>E</sub> = 0mA	65	—	—	V
BV <sub>EBO</sub>	I <sub>E</sub> = 1mA	I <sub>C</sub> = 0mA	3.5	—	—	V
BV <sub>CER</sub>	I <sub>C</sub> = 50mA	R <sub>BE</sub> = 10Ω	65	—	—	V
I <sub>CES</sub>	V <sub>CE</sub> = 50V		—	—	35	mA
h <sub>FE</sub>	V <sub>CE</sub> = 5V	I <sub>C</sub> = 1A	15	—	120	—

### DYNAMIC

Symbol	Test Conditions			Value			Unit
				Min.	Typ.	Max.	
P <sub>OUT</sub>	f = 1025 — 1150 MHz	P <sub>IN</sub> = 90 W	V <sub>CC</sub> = 50 V	400	450	—	W
η <sub>c</sub>	f = 1025 — 1150 MHz	P <sub>IN</sub> = 90 W	V <sub>CC</sub> = 50 V	40	—	—	%
G <sub>P</sub>	f = 1025 — 1150 MHz	P <sub>IN</sub> = 90 W	V <sub>CC</sub> = 50 V	6.5	—	—	dB

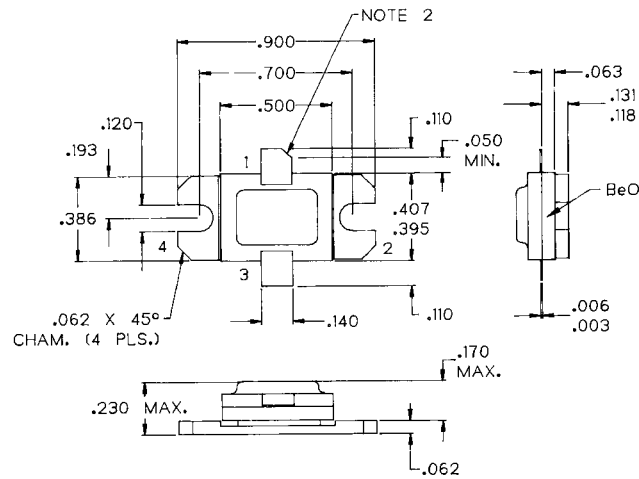
Note: Pulse Width = 10μSec  
Duty Cycle = 1%

### TEST CIRCUIT



PACKAGE MECHANICAL DATA

Ref.: Dwg. No.: J135066F



- NOTES:  
 1. ALL TOLERANCE  $\pm .010$  EXCEPT WHERE NOTED;  
 DIMENSIONS IN INCHES.  
 2. COLLECTOR LEAD CHAMFER 45° NOM. X .040 NOM.

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